

Center for Modern Greek Studies
Greek American Oral History Project
Transcription

Tape:

Subject: John Cladis
Interviewer: Mary Nicholson Goldworth
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Transcriber: Amanda Cookson
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Tape 1 Side A

Counter: 000

I: 10th, 2001, an Oral History of John B. Cladis and interviewer who and he is being interviewed by Mary Nicholson Goldworth for the Greek American Archive at the Modern Greek Studies Center at San Francisco State University and this is the first tape of that interview. John, just to get a connection here with the Greek background, what leads you to consider yourself of Greek, to be of Greek heritage?

Cladis: My father and mother came from Greece and they spoke Greek in the home at the time I did not know English until I started school so Greek and Greek {010} the Depression and there and there were not we did not have a Greek church so my mother had taught us how to even like Greek and taught us the hymns of the Church and we, she sang hymns of the church every morning, all morning while she was working which was very nice. So we felt that very much we were Greek and actually there was a lot of discrimination in the small town of north Nebraska {016} in those days {016} some of it was kind of difficult...

I: mmhmm. So the, the immigrants were Europeans, your mother and your father?

C: That's right.

I: And they you told already told me they're they {019} birth in their country of origin but in the history they, they but I'd like to put that on the table if you could please. So refer to your father was born in 1886.

C: Yes, that's right.

I: And the place of birth, maybe you could describe that or mention what that was?

C: My father and my mother were born in Stomion which is a {024} little village right along the coast of the Corinthian Gulf.

I: And your mother's birth year was, you told me, told me before was in March of 1902.

C: That's right.

I: And the same place. And that they arrived here in the United States approximately what year do you think that was?

C: 1921.

I: And they were already married before they came?

C: Yes they married, that's right.

I: Ok. If you could tell me a little bit about what led them to leave Greece.

C: They, they were looking for a better life in this country. The distant {034} World War 1 in Greece and wars in Greece {035} Greeks genocide and the and//

I: Genocide of//

C: So, so many people were starving, they couldn't get enough to eat. My mother and father get to work would work in a different {039} walk nearly all night to get bread and they were very poor it was a hard time in Greece.

I: So it was mostly not getting food, it wasn't, it wasn't being attacked by a, an enemy or by another local people. It was lack of food that caused the//

C: //Yes, that's right.

I: ...loss of so many people there. And so//

C: It was true in World War II also.

I: That was true in World War II. And now you said, you did say something about there having some property with that still belongs to be the family <interruption> maybe you can fill in that part of it.

C: {045} go to our church there very very very beautiful property. And and handed down to many generations and it it's still in the family right now.

I: Well certainly they didn't any way to their survivals to make a living there at that time?

C: Oh I can't, can't {048}.

I: It wasn't a frugal {049} enough to sustain the proper diet then. And they made the decision to leave together.

C: Yes.

I: Did they know where they were going, or what, how they were going to get there and what they were gonna do <laughs>, what did they know about that?

C: I, I think they knew where they were going because many Greeks had gone to the same place where my father was <coughs> he was {054} they moved to Dawson, New Mexico {054} which was a Greek mining town.

I: Mhmm. What kind of mining is it? You told me before//

C: {055} Coal mine.

I: Coal mine. And so that's where they went first?

C: Yes.

I: And then they decided to, to move from there?

C: Well, my mother's brother worked there, close almost the same place and there was a cave then in the mine. The safety measures were not very good in the mines in those days and, and my mother's brother was killed in a mining, mine accident and at that time my father and mother left for Denver, Colorado. My father worked in a grocery store and died about a year afterwards.

I: Yes, so the, the early time in this country was kind of searching for to find a way to survive most people were {066} based on that understandable for most of our parents. Did they have a plan to support themselves or were, how did they make the decisions about what they were gonna do to survive? You said your father had a brother//

C: Oh, my mother's brother.

I: Your mother's brother.

C: Yes.

I: And so that was a connection there and then that's just the way that it started {070} the best that they could do living in the time that was available. And then the decision to move again was based on better//

C: //life.

I: Better life <mumbling> Can you tell me a little bit about what your parents were thinking on applying becoming citizens of the United States, citizens? How did that come about? What, what was their//

C: I don't think they were very much interested in becoming citizens and I don't remember when my, I don't remember very much about my father, I have he died but my mother went to school and was very much interested in becoming an American and I...

I: Mhhm. She wanted to become a citizen then.

C: She wanted to become a citizen.

I: It happened before you were born?

C: No, no that was after I was born.

I: After. You said she went to school where did she go, what what did she study there?

C: It it was the the {084} in north Nebraska and there was a little {084} high school they had the {084} school for immigrants, people who were {085}.

I: So she went, she there.

C: She went there.

I: And she studied English as well?

C: Yes.

I: The {086} Program, or?

C: That's right.

I: It's very interesting that {089} and how would you say that their life here was different compared, compared to their life in Greece, what they knew in Greece?

C: Well//

I: //Culturally, economically, politically?

C: I think {092} especially my mother who died, my father died {094}, two children {095} very difficult for her. But when they were in Greece they

lived in a very beautiful place and so that must have been very nice {097} all very difficult economic. So in this country I don't, I don't see how the {098} is very much better I think {099} from the time I..

I: Can you describe anything that was going on politically between the Greece and when they left here?

C: I I don't I I//

I: The first World War in Greece...

C: Yes.

I: I don't know the history that well but they were probably under {104} Greek independence was, I mean, for that part of Greece happened in 1821 {107}. But there were parts of northern Greece that were not in marked by the Greeks who are enter much later. So but you think that they were they under the Greek nation-, national government or were they still under the Ottomans?

C: Oh no, {110} Greece at that time.

I: Yes.

C: And they were, they were helping the Allies during the war. That was right after World War 1 when the Ottoman Empire fell.

I: And now, let's go to your own individual story from there. You were telling about how you're, you're father died when you, when you were older so and then perhaps you'd tell us, tell us something about your early years before you went to, well up through high school perhaps but where you were, what do you remember, some specific events that you remember when you were that age <laughs> .

C: Well I {121} I had to work the August 6, '79 I would work there every day after school and I tried to help so..

I: What kind of work did you do as a young child?

C: My, my stepfather had two jobs that {126} little restaurant and a a shop where he liked to broadcast and things like that. Trying to {128} worked in the shop {129} I was really trying to back then I was 12 years old I had my first full-time job. {131} was 12 to 13 {132} international {132}. <laughs>

I: You were 13?

C: <laughs> yeah. Yeah the note {134} they didn't care about driver's licenses or <laughs>. So I was working there in two dairies making about five cents an hour. <laughs> So//

I: //That

C: I was very hard working I exhausted I think that was the hardest I ever worked that time.

I: That had to be during the Depression.

C: And I//

I: {138} Well what did you do about going to school?

C: Well//

I: //Elementary school.

C: I went to, to a Catholic school then and {141} have a business education as well so, so we went to school there and Oh we felt discriminated because we couldn't take communion or participate in Catholic events with all the other children and in grade school I can remember fighting and all the boys {142} and the word was "get the Greek!" <laughs> So...

I: The Catholic boys, the boys in the Catholic school//

C: //Right.

I: ...did that.

C: Yeah, yeah. So I, I just remember fighting when I was in grade school but then we went to Junior High School in the public school and, and I was getting on better then. My my sister my kid sister {152} at that time {152} assimilated and and I also wanted {155} last we could do {155}.

I: You were in high school together with your sister.

C: I was in high school, yes.

I: How did your interest in science, in physics begin, was did it have origins in your up-, through your high school did that give you, reserve that role <interrupting> as you assimilated//

C: Yeah, yea, no that that started in high school. I was very, very much interested in mathematics and science and <mumbling> I think {164}.

I: {166}

C: It was kind of difficult I used to get up at 4 o'clock in the morning and {167} and then after {168} restaurant {168}. So I didn't get very much sleep I would work in the restaurant until about 4 in the morning so I came home and it's time that I got up <laughs> So anyway, I had an hour study time in in high school so I could get all my work done {173}

I: When did you sleep?

C: Oh, I I went to bed about 10 o'clock I'm pretty good with keeping {175}.

I: How did you manage your transportation, getting at odd hours like that, going back and forth to school and to//

C: {179}

I: and to

C: high schoool. I used to get up at 4 o'clock in the morning {180}.

I: You said quite a bit about your professional lifelong, professional work and I wanted to make reference to quite the some of that but I maybe we could fill in the story about your marriage first. {188}

C: Yes, well, when I got back from the service after World War II I went to a, to a dance that at our church {190} and I met Jamie there {191}.

I: Now give us a location, what part of the country you were, what church//

C: This, this was in Denver, Colorado.

I: In Denver. Yes

C: Yes. We had seen {193} church

I: What was the name of your church? You don't remember.

C: Oh my gosh, I don't, I don't remember.

I: But that was the only//

C: That was the only church//

I: Greek church.

C: In Denver, {196} they had two more {197}. So Jenny and I had been going to that church for a long time before I went into the service. {199} We had grown up and {199} when I got back. And it was it was lovely for a time and my {202} and we got married six months later.

I: And you were in Denver at the time.

C: Yes.

I: Yes. Could you describe the the environment where, you said it was a dance, was there, just, what just describe it visually, what did it look like and what kind of people were there?

C: Oh it was it was in the basement of the church and there were {208} celebrating and and

I: What went on at the dance, did t hey have what kind of music did they play?

C: Well it was English and, and Greek music. Yeah they had records and...

I: When you say Greek music was it anything like the kind of music that people play nowadays in our Greek events?

C: I, I think it's very similar, people held hands and//

I: //Line dancing.

C: Line dancing.

I: Was the music, I was wondering if they played similar or maybe some of the same music that <mumbling>

C: That probably, I I don't remember very well but some of the songs I'd say so.

I: Some of them.

C: Some.

I: And then they played American songs as well.

C: Yes.

I: This was after the war.

C: Yes.

I: And before {223} so.

C: Right.

I: It was whole repertoire of popular songs in those days. <clears throat> People play nowadays. A reminder that is that what the kind of music, the popular songs and do you remember any of them, a name of any of them?

C: The popular one was <sings> “Chestnuts roasting on an open fire”//

I: //Oh yes, “on an open fire.”

C: “On an open fire.” Yes, I remember that {232}.

I: Has a Christmas, during Christmas season.

C: Definitely {234}.

I: So what was your arrangement for getting married, what was the event that describe that to us.

C: Well that was a very very nice {238}, very large wedding. I was teaching at the time about a year or two and several of my colleagues {241} and had very nice, except, reception we remember him. So it was {247}

I: <clears throat> So the people who attended then were part of your Greek community but also//

C: //Yes

I: Part of the school community {250} and then where did you go and what did you do as a couple after that?

C: Well after that I continued at Colorado University for about six months {254} and I decided to go to Colorado to the University of California, Berkeley {258} so..

I: That was, I know you I have the dates but just keep the sequence.

C: we got married in 1948. <interviewer coughs> Yeah, in January of 1948.

I: And at that time then you could say you settled there for the time being to//

C: //Yes

I: With Jenny and when did you start your family?

C: We started our family right away and we had two daughters before I graduated, I was there for four years and I was a full-time student at the University also I was a full-time employee at the Lawrence Laboratory in Berkeley.

I: Well now let's see I think I wanted to ask you a little bit more about Jenny. Describe what what was the bal-, air about her that you appreciated, were attracted to, was she a beautiful young lady?

C: When, when we got married?

I: Yes, just what brought you together that way? {279}

C: She was very very attractive girl {282} but then I talked to her and {284}

I: You said that you met in a church and you were both active churchgoers before that time, had what role did that play in your getting together?

C: Well, there was that {292} my mother and relatives.

I: What are you talking about your family origin before you married, what tell a little bit about your language history to that point.

C: Well, when my sister and I started school we spoke in Greek and then we learned English when we went to school. Must have been difficult for a while but my sister and me don't remember the transition <clears throat> that time, still speak Greek in the home.

I: That's what I was wondering. So who spoke what to whom then at home, did you all speak Greek to each other?

C: We, well//

I: //Or did some of this//

C: We certainly spoke Greek, not my father, but to each other.

I: Meaning the children.?

C: The children, yes.

I: Was there any other language that came into your life as part of growing up?

C: I started, I studied Latin in high school, I {319} Latin, studied {320} for three years and French and Italian. When I was in Italy for {323} I learned Italian fairly well without {324}.

I: So languages are easy for you to//

C: I enjoy languages very much.

I: <clears throat> So now you did say that you were interested in science and math when you were quite young. {334} take the story to your schooling, your higher education, just a summary of what decision you made along the way, what made you decide to choose what your major at the University at Colorado and you had very extensive story that came after that as well as the education part of it I suppose the occupation fits in there some of the time.

C: Well, when I was {346} high school I was working quite, quite hard when I went to Colorado University {248} learning experience here to be able to {353}

I: How did you support yourself when you were in college?

C: My mother and father had a {357} in Denver

END OF TAPE

Counter: 000

I: Continuation of side 2 of the Oral History interview of John B. Cladis, C-L-A-D-I-S and November 10, 2001. We were talking, John was telling about his experience as a student in, in college at the University of Colorado and his studies {004} his studies and, and the higher education in science.

C: Well {006} cause//

I: <interruption>

C: \$35 {008} tuition because of {009} also and {009} took my physics, physics. I was invited by my professor to teach, teach the course. So I

was teaching physics while {011} my education and I enjoyed of course to get some money for that, about \$24 more than the usual 12. So I {012} physics student for two years and I'll have to get as many credits as I needed to graduate. I was so {013} 500 {015} and I, I was President of our social club {016} and the Vice President {016} Council.

I: This is around college.

C: All of it, all of it in college, all of it. Two years, alright. I had a wonderful experience in my life. I blossomed out {019}.

I: How is the, how did you make that decision to, to become just major in physics and mathematics {021} so with that just naturally fall into that.

C: Yeah I just, I just fell into that because I did well in those courses in high school and I, I knew {023}.

I: You have such a start in your earlier life in high school and then college. How did you move on from your college life to the next stage, to the next place? What was, what did you think about, what decisions did you have to make about what you were going to do and where?

C: Well when I after I finished there college I did graduate {030}. So I there at that time//

I: //That was in 1941?

C: I, I, I {032} yes, it was {033} 1941.

I: But then you're//

C: //I went, I went in '43 {033}. And I {034} after that I was I went I was {034} school and after that when I graduate from Oxford Kennedy we took competitive exams, they wanted to select 10 people had to pursue the radar program and I was one, one of those 10, fortunately. And I, I went to Harvard//

I: But you did, when you tell about that competition just to fill in the details on that.

C: Oh yes, well, they gave, gave me a time to, all the people in the City Corps {040} who had degrees in or Physics {041}

I: I think you mentioned about the number of people//

C: //Yeah, I think there were about 5,000 people altogether//

I: //Yeah.

C: Which is a, is, yes. And there's {043} so we pursued our studies at Harvard and {044} <phone rings>

I: Ok now you mentioned going on to Harvard but I'd like to go back to your, the competition just because the it was such an outstanding, unusual event in anybody's life and I wanted to hear, do you remember any person or any specific place when this took place, when you heard about the results of the competition? The person who was involved and keeping you informed or keeping track of your progress?

C: Let me know think, yes, I, I remember that very well. We were {054} in the auditorium and we were handed our, our folders {054} //

I: //This was on the campus?

C: Oh that that was in the army {055} in, at Fort Monmouth, New Jersey. {055}

I: Oh, in the, in the army camp in New Jersey, Fort Monmouth.

C: That's in Fort Monmouth.

I: Yeah, ok.

C: And that's where I found out that I was one of the winners {058}.

I: Is announced by, you said, the results were given in the auditorium. Who gave, who gave the results?

C: Oh, I everyone was given orders {060} orders the Fort Monmouth.

I: So when was the moment that you learned the results about yourself?

C: When I opened up the envelope//

I: //In private?

C: <laughs> no, I//

I: //It wasn't announced in public the whole crew?//

C: //I, I, I//

I: //So you//

C: //I, I don't remember that.

I: Yeah. Ok and then you said, make help see the story between when you were in the service//

C: //Yeah.

I: And then you went to Harvard.

C: Yes.

I: How, how did that connect?

C: Yeah, so well then the, the, the 10 of us went to Harvard to study mathematics, physics and {070}.

I: And that was all part of the competition, the//

C: //No, no, no//

I: //Award of the//

C: //No, no that was all after, that was our training {074}.

I: The people who were selected//

C: //Yes.

I: //then went through this training.

C: Yes, that's right. Yes.

I: So you were together with this group, one of 10 people?

C: We were, we were together {076} and then together we started a school {077} assistants.

I: Can you tell anything about a person who was with you in this group?

C: Only// {080}

I: //Or, or the one person, a sample?

C: {081} over here. Juan Shelton, Joe Scandon, it's not clear to me. There, there were five of us, there was//

I: Yeah, we can take, we can take a look at that {085} and collection. And so did you have any continuation, what kind of contact did you keep?

C: Oh my gosh, {087} at the head of the Electronics Department at the Postgraduate school in Monterey and we kept our contacts for, for, for many years. {090} myself in Denver, Colorado and we, a lot closer {090} closer than. Yes I had pictures of all of them and some {093}.

I: Ok then you were saying that {094} at Harvard and Princeton, MIT.

C: MIT, Princeton's later.

I: MIT and then Princeton later so let's go from MIT to Princeton, that's your next new//

C: //Well, that's after my radar studies right after the war ended in Europe, D-Day, they didn't need the radar officers so we were sent overseas. {101} navigation. {103} I got a Ph.D. in Nuclear Physics and then I went, went to Los Alamos, New Mexico. At the Los Alamos Scientific Laboratory for, find the atom bomb and then {107} Utah. Utah was very high priority {108}//

I: //Give us some dates, give us some dates on that, the end of the war was 1945.

C: 1952 then 1955 that was few years {111}.

I: How, how did you get into the-, these more advanced sciences it's probably didn't even exist when you were a younger undergraduate or, or graduate student. Is there some progression there of decisions that you made, opportunities that came up, how did that come about?

C: Yeah, I, I was very fortunate that {118} at that time the university I was the best, the best in the whole world at {118} Nuclear Physics. {119} when I was there {120}.

I: Could you mention any, any main little person that you knew or?//

C: //Yep, I//

I: //that you knew.

C: and {122} these were all {125} worked there, making all kinds of new discoveries, it was a very, very exciting time in my life.

I: So you say you worked with them, were, what was the nature of the work you were doing, not, not so much scientifically but just, in pick a topic and how did that develop into new topics that's something that just kept growing, yeah?

C: Yeah, one of, one of the student {132} working there I was a student also so I began to work on and I helped out all these people get their their experience as part of my {135}. But then a very interesting thing happened, that//

I: //What did you say to them, what did they say to you, you had a meeting with one of them and say well you were working on a particular piece of research right now and it was part of your job.

C: No.

I: Can you see some way did you think {138}.

C: I helped, helped, helped them with their experience but then very interesting thing happened so {141} chamberlain, chamberlain and did an experiment and in there you put the {143} and the results were not {144} so they waited until they could receive the results {144} they too scattering. A lot of people don't understand that but anyway they, they waited for two years because they couldn't explain the results and none of them knew why they couldn't get the same match and I think laboratory didn't like his {149} he thinks and I, I heard not getting the results and they. Then I told them and they <laughs>//

I: //So you were instrumental in that//

C: //Instrumental

I: //with or without credit then, not yours, that works.

C: When, when the papers filled out I was at the {154} at that time and I was not going to, very disappointing that they didn't give me credit for it. {156}

I: Yes, so, let's see you were very much a lead searcher in those early we-, years and, and you did you also did a couple little teaching {160} and I'm not sure how that fits in.

C: I, I, I taught at Colorado University and that was my {161}. And remember {162} afterwards I wanted to spend some time with my family in Denver {163} and I met Jenny so a little bit later we were married so. {165}

I: But then those years after you worked, when you were working at the {166} at the Livermore Laboratory//

C: {168}

I: What, how did you perceive from that part you were doing very intensive research to be your next stage of, of scientific//

C: //Right, well, when I was in Berkeley I knew a few scientists there were involved in, in the project, worked on {174} and I, I started scientists who were working on the bomb {176} so pursued that, that I knew that it was really important to keep the bomb from the rest of the {178} ahead of them so {180} I was going to get ahead in Berkeley.

I: So it was through your personal working relationship with them that you made the connection//

C: //That's right.

I: ...{184} With Mousalimas {184} so when you went to there, to New Mexico, some of them were there with you?

C: Yes.

I: Was that?

C: Yes, honestly {188}

I: Can you remember any particular event that happened or any person with whom you were talking about? Not about the secrets but just about the premise of the research that you were doing there so we can picture it or have a visual picture of what went on.

C: Right, well, we went {195} operations we had and explore our and that was kinda hard on our marriage, well, not on our marriage but and and {200} that long we were very...

I: What kind of tests did you <cough>, did you take part in?

C: Well diagnostic tests we were measuring I {205} nuclear reaction {207} and then for the third we would {208} from the first point.

I: So there were actual {211} on the ground//

C: //Oh yes.

I: Or underground, I don't remember.

C: No, no, no in, in those days they were a lot faster.

I: And you did, and you made your measurements from a distance of about 15//

C: //About 15 miles.

I: Miles.

C: And then we have <interviewer coughs> {215} explodes, 15 megatons of hydrogen {217}. We were out {217} 30 miles//

I: The decision was made at sea as well?

C: <mumbling>

I: During this//

C: //No we had {220} we had density {223} you couldn't see the sun, I looked up at the sun {224} and light was extremely bright, quite a sensation. And then {227} forty miles away {230} difficulty {235}.

I: What did you do for debris?

C: Well//

I: //You had some other source?

C: //Well there, I, I, I they kept washing down {238}

I: So that was part of your, your work path {242}

C: Yes, definitely. But I was, I was unhappy there because I {243} my family {244}

I: //Now your family were living in {245}?

C: {246} It was a close community {247} and//

I: //Could you describe a little bit about that?

C: Well there are little fence around it{118} and Jenny's sister tried to visit us once and the, the {122} would call from the gate and I {124} five people that she visited//

I: //To come in so it was neither, no one could come in without special permission//

C: //That's right//

I: //Or go out?

C: Or, or go out. That, that's right.

I: So, Jenny wanted to go somewhere.

C: Yes.

I: Or, or with the children outside of Los Alamos//

C: We, we didn't go out {128} but we could take trips together {129} Los Alamos is up in the mountain and we trip {132}. So then we'd shop outside but they did have some, some shops there//

I: //Mmhmm.

C: Very primitive. {133} The community was very young there and like {132} have kids and school where most of them were {135} elementary grades and there were multiple {137} once we were in {137} and our children saw one person walking down the street and they were very shocked, "Oh look what's the matter with him!" So it was a very artificial year {140} so but that {141} California

I: Because the {142}

C: Well, I, actually I//

I: //How was that different from what you were doing in Los Alamos?//

C: //Well, for this was entirely different. Professor, Oh{146} he was a {147} Profess- at Los Alamos invited me to, to join him and others to start up {150} on systems and space systems. And I told you at that time we were

working on a satellite proposal and we, we met spelled it right, Sputnik.
{156} Well we were//

I: //Give us a date on that, I, I remember when it happened but the date for us, what year?

C: I, I, I, let's see, I was there in 1957 and '58. So, about {163} the largest {163} piece that they have over here in the Bay Area. {164} Satellite and {164} systems and I worked on the development of the first satellite, that was a very, very interesting experience. Then I, afterwards I went to, to more useful things, useful things so {170} business.

I: That was in, into a, into a new area on//

C: //A new area, yes.

I: Developing...Ok, so.

C: So {174} space {174}.

I: You did that at, at {175}.

C: {176}.

I: What was a change from the designing and the researching you had done for these base...

C: At that time {178} seeing me with the satellite, it was//

I: //Satellite?

C: <coughs> Yeah, yeah. But it was, but thereafter my family had come back to {181} space radiation {184} assistance on satellite in space. I was {184} on radiating physics {186} reduction//

I: //That was <coughs> designed, a different design for the, the space satellite? Different concept?

C: {191} I tell ya, course I was working out of space {192}. I also designed a {193} space environment too. It came from place that all system satellite operated under the environment {196} and I wrote up a paper on this and I, about five years later it was, when I got millions of clips it was crazy. But they would not accept it at first because, costly. And but now every, every designer in the state {203} has the space involvement {203}. <laughs.

I: Well, how did you, how did you account for that? It's kind of bad {205}, perhaps not. You're used to//

C: //Used to be called the {207} Table <coughs> because they couldn't didn't know what else to call it {209}. Springsteen {210} <laughs>

I: It doesn't have that name anymore?

C: No, no not anymore. No, no it's Space {212}.

I: And so you gave us a picture of your later work through the time of your retirement and subsequential {219}.

C: I won <clears throat> I was in charge of the Theoretical Physics students at {222} Research Laboratories located at Stanford and I, I required this fingertip database space at the {227}